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Maternal Personality Variables and Their Effect on Interaction with Their One-Year Old Children

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MATERNAL PERSONALITY VARIABLES AND THEIR EFFECT ON INTERACTION WITH THEIR ONE-YEAR OLD CHILDREN

by

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ABSTRACT

Attachment behavior is defined as the diversity of behaviors which promote proximity, contact and communication with the figure or figures to whom the child is attached. The purpose of this study was to demonstrate that personality traits of the mother influence the manner in which she characteristically relates to her child. These traits, therefore, influence the quality of attachment of the child.

To accomplish this task, thirty-six mothers and their one-year-old children participated in a controlled laboratory situation consisting of eight episodes in which the child alternately played with the mother, with a stranger, and alone. Observations were made of the manner in which the mother related to her child, both before and following separation according to three categories of interaction: play interaction, social/verbal interaction and physical contact.

Indices of the personality traits of nurturance, dominance, and dependence/independence for each mother were obtained through the administration of the Edwards Personal Preference Schedule.

Results indicated that only in two areas were there significant differences between the manner in which a mother responds to her child in a non-stress situation compared to her responses when the child is in stress. The mother gave more comfort responses both verbally and physically to her child when the child was in a stressful situation.

In all but one instance, no evidence was found that degree of nurturance, dominance or dependence/independence differentiates maternal behaviors towards children. The only significant relationship established was between nurturance and proximity vocalizations. Low nurturant mothers made more proximity-inviting statements to their children than medium or high nurturant mothers.

Methodological considerations were discussed, particularly the limitations of rating maternal behaviors in a laboratory situation.

CHAPTER I

ATTACHMENT BEHAVIOR

Introduction

Beginning early in infancy, a child begins to focus his attention on a singular love object, usually the mother. Gradually, she attains primary status; the child acts and reacts to her as he does to no other person. Freud and his psychoanalytic followers have emphasized the importance of a child's relationship with his mother. They feel that this relationship is the foundation of personality. Yet, although the importance of this special relationship is widely recognized, there is no unanimity of thought regarding its origin or development. At present, it is not known whether the mother achieves her unique status because of her high potential for reinforcing the child, or because of a biologically determined propensity on the part of either the mother or child to react to each other in this fashion. It is clear, though, that all children to varying degrees become attached. Attachment is defined in the literature as the child's propensity to seek proximity to and contact with a specific figure, usually the mother. In order to do so, the child engages in attachment behaviors, which include the diverse actions in which the child engages to maintain proximity or contact with the mother.

Bowlby (1969) classified the large number of theories that have been proposed concerning the nature of infants' ties to their mothers into four principal groups. The theory of secondary drive includes the majority of theories. According to this position, a child becomes attached to his mother to the extent that she meets such physiological needs as hunger and warmth. A second theory, primary object sucking, holds that the child has within him an innate propensity to relate to a human breast--to suck it and to orally possess it. Eventually he learns that the breast is attached to the mother, so he learns to relate to her as well. According to the third theory, primary object clinging, the child has within him an innate propensity to cling and be in touch with another human, a need which is as primary for him as his needs for warmth and food. Finally, the theory of the return to the womb postulates that the child resents having been expulsed by the womb, and as such he is motivated to return there. He can only symbolically achieve this, through attachment.

None of these theories have been intellectually or empirically compelling, however. It is a fifth theory of attachment, Bowlby's own, which has generated the most research and has been accepted as the most complete and comprehensive theory of mother-child attachment. Bowlby sought to bridge the gap between psychoanalytic theory and contemporary biological science. Drawing on ethology, he stated that children are born with innate propensities which have developed over the ages and have helped man to adapt and to survive. Though many of these propensities are instinctive, "fixed-action" patterns which require specific eliciting stimuli, others are labile, non-specific and plastic patterns of behavior which are consequently responsive to a wide range of

environmental problems and changes. Since the infant is helpless when born, Bowlby felt that there must be genetically transmitted behavioral safeguards. One such safeguard would be parental-care behavior; another is the infant's reciprocal behavior, attachment. A child's tie to his mother, then, is the product of a number of different behavioral actions which have as their main goal proximity to her, through which the protection and care needed by the child are guaranteed.

Bowlby maintained that some of these behaviors are instinctive during the first months of life. However, an entire attachment behavioral system is learned by the latter part of the first year, usually around eight to nine months of age. Bowlby uses the analogy of a control system to explicate his notion further. Control systems are goal-directed and they make use of feedback. When there is a discrepancy between a given state and a desired state, behavior is "switched on" and continues until that discrepancy is eliminated. A concrete analogy would be a thermostat governing a furnace. When there is a discrepancy in room temperature, the thermostat acts to "switch on" additional heat until the temperature goal is attained. The goal in attachment behavior is the security felt in proximity to a specific individual, usually the mother. Two conditions serve to activate this behavior, separation and threat, and it is only the sound, sight or touch of the mother that will terminate these behaviors. Thus, attachment is seen when certain behavioral systems are activated, systems which have evolutionary roots but which develop as a result of interaction with the mother.

Bowlby (1969) outlined four major stages in the development of attachment: (1) the first two to three months of life, which are marked

by undiscriminating social responsiveness; (2) the second three months of life, which are marked by a phase of object-figure discrimination; (3) the period between seven months to three years, which is marked by active initiative in seeking proximity and contact; and (4) the period from age three on, which is marked by more complex, goal-corrected partnerships. It is in phase three that the child's attachment behavior patterns are solidified and he can be described as attached. It is interesting to note that psychoanalytic theorists maintain that object relations develop during this same age range.

Ainsworth (1969) amplified Bowlby's theory by identifying patterns of behavior which may properly be called "attachment behaviors." Ainsworth proposed that, in order to maintain proximity to the figure of attachment, the child will initiate signaling behavior (crying, smiling, vocalizing) or orienting behavior (looking, following, approaching). In addition, the child will engage in active physical contact (embracing, clinging, climbing). Some of these behaviors are present at birth, such as looking and crying; Ainsworth feels that they are necessary precursors of attachment behavior. Other behaviors are developed slowly, their rate of development varying greatly from child to child. Usually by the end of the first year of life a child is attached to the mother, and his systems of attachment have become stabilized.

There have been very few comprehensive studies to test this theory of attachment development. Two studies, however, are frequently cited as offering empirical support to Bowlby's notions concerning the time of specific attachment and the object of that attachment. The

first of these was done in Glasgow by Schaffer and Emerson (1964). Sixty infants from working class families in Scotland were visited every four weeks until they reached the age of one year. The children were observed in seven everyday separation situations. The majority of the children showed specific attachment at about seven months, none earlier than five months, all before twelve months. In the large majority of cases the mother, as expected, was the first object of attachment. In 29 percent of the cases, however, the child became attached to two or more persons initially.

The other thorough study of attachment development was a longitudinal study of 28 unweaned Uganda infants by Ainsworth (1963, 1967). Active initiation of attachment behaviors was found to emerge more quickly in these African children than in Western infants. All but one of the children showed attachment to the mother in the third quarter of the first year.

Influence of Maternal Figure on the Quality of Attachment

Most of the research to date on the importance of early attachment concerns the effect of attachment on the subsequent adjustment of the child (Chodorkoff, 1964; Moss, Pederson & Robson, 1969; Rubenstein, 1967). It has been clearly and conclusively demonstrated that maternally deprived children are more likely to suffer later developmental problems than those children raised with a mother figure (Bowlby, 1953; Goldfarb, 1945; Spitz, 1945). The same is true for children who had maternal figures, but who did not develop a secure attachment to that figure (Marshall, 1961; Winder & Rau, 1962; Wittenborn, 1956).

There have been fewer studies dealing with the actual quality of attachment, or with the maternal and child variables which lead to satisfactory or unsatisfactory attachment. Nevertheless, one common thread unfolds. The mother's characteristic behaviors, attitudes, ways of dealing with her children, seem to have significant effects on the quality of attachment her child forms.

In their Glasgow study, Schaffer and Emerson (1964) addressed this issue and found that the variables that influenced a child's attachment behaviors most are maternal responsiveness and maternal initiation of interaction. The particular kind of interaction did not appear to be a critical variable. Cuddling, laughing, talking and demonstrating toys seemed to be equally effective in building attachment. In short, time, attention and quick response to their children's stress are critical maternal behaviors in attachment formation.

Studies of Uganda children by Ainsworth (1963, 1967) yielded similar results. She found that the strength and security of a child's attachment was not related to the "warmth" of the mother. However, the amount of time the mother spent with the child and the amount of attention she gave him were positively correlated with attachment. Children judged to be "securely attached" had mothers who were able to give detailed, accurate information about them, and who also showed concern and warmth when discussing them. Children judged "not-yet-attached," on the other hand, had more disinterested mothers. Their mothers, although they had the time, preferred to leave their children in the care of others. They also showed less warmth for their children and less knowledge of critical aspects of their development.

Two studies by Rheingold further emphasize the importance of maternal interaction in developing attachment behavior. In the earlier study (1956) Rheingold took charge of the care of four institutionalized six-month old babies for a period of eight weeks, giving them personal attention while performing routine baby care. When compared to a control group of children reared in the institution, the babies with personalized attention were found to exhibit more defined and developed attachment behaviors. In her 1969 study, which involved observing the mother-child interaction over a period of time, Rheingold found that in the early stages of the child's development, the mother initiated most of the interaction based on her own attitudes, personality and experience. As the child grew, however, his responses served to influence the mother. Thus, in a sense, both the mother and child influence, modify and socialize each other.

Moss and Robson (1967) were interested in the degree to which adult behavior towards a child is influenced by the parents' early experiences with the child. They did an observational study of 30 newborns with their mothers in a naturalistic setting over a one-year period. The researchers' interests focused on both the initial adaptation of the pair and the patterns of interaction once stable behaviors were established. They concluded that maternal behavior tends to be controlled initially by the child through the amount of reaction, crying, cuddling the child displays. Within the first few months, however, the mother becomes a reinforcing agent, and as such she is able to regulate and shape her child's behavior. The important and inescapable point made in these studies is that the development of attachment is double-pronged. Variables concerning the mother

as well as the child are important in determining the extent and quality of attachment.

Variables which affect the amount of mother-child interaction were examined in a study by David and Appel (1969). They observed a number of different mother-child pairs and were struck by the large discrepancies in amount of day-to-day interaction between the pairs. The significant variable appeared to be the mother's willingness to interact. Although the child responded to virtually any interaction the mother initiated, the reverse was not true. It was the mother who regulated the amount of interaction taking place.

The second important maternal variable in shaping attachment behavior seems to be the manner in which the mother interacts with her child. Mothers who typically handle their children tenderly, who pick them up to show affection and who hold them for relatively long periods of time, have children who not only respond warmly to the affectionate handling but who are also able to cope better with being put down (Ainsworth, Bell, & Stayton, 1972). These children are able to move confidently and calmly away from their mothers, engaging in independent play and search. Mothers who react more coldly to their children, in a matter-of-fact manner showing little warmth or affection, have children who not only squirm and wiggle when in the arms of the mother, but who, once put down, fuss and squirm near the mother in an effort to be picked up once again.

In another study, Ainsworth, Bell and Stayton (1971) dealt with one-year-olds in a strange situation procedure. They divided the mother-child pairs into three categories based on the pairs' responses to each other in reunion episodes, which they feel to be

an accurate method of determining quality of attachment. Further measurements were taken on members of these three categories. About one-third of the sample displayed mother-child interaction patterns which were normal and healthy. These mothers were not only sensitive to their children's distress signals, but were also responsive, accepting and warm. In the home situation, the children were secure and exploring, and not agitated by short, everyday separations. In a strange situation, the children were able to use the secure base of their mother from which to explore, and only retreated from exploratory play to active attachment behaviors periodically to reestablish contact with their mothers.

With mothers less sensitive and less comfortable in their interactions with their children, however, individual differences in the children's reactions became more apparent. Children whose mothers fell at the middle of a sensitivity-insensitivity continuum showed inconsistent behavior within their group, some using the mother as a secure base from which to explore, others showing independence in exploration and neglect of the mother. They responded to intense separation by showing markedly less heightened attachment behavior in comparison to that shown by children with sensitive mothers. Children with rejecting, insensitive mothers, on the other hand, showed either minimal stress in the strange situation procedure or high distress followed by marked ambivalence to their mothers upon reunion with her. The authors hypothesized that the child with a rejecting parent experiences both insecurity due to the lack of harmony in the mother-child interaction and approach-avoidance conflicts over reinstitution of proximity and contact with the mother.

They further hypothesized that this conflict arouses defense reactions which direct the baby into independent play in an attempt to allay his insecurities and block his proximity-seeking behavior.

Yarrow (1963), in a classic study of children raised in foster homes, also emphasized the significance of maternal behaviors on children's behaviors. Foster mothers were rated on such variables as tenderness, care, acceptance and emotional involvement. It was found that mothers who ranked high on these dimensions reared children who could cope more easily with stress. These children had higher IQ's, and showed more intellectual and social initiative than children with mothers ranking lower on these dimensions. More specifically, he found that a child's ability to cope with the frustrations and stresses of everyday life was directly related to (1) the amount of physical contact the mother showed the child, (2) the degree to which her soothing qualities were effective, (3) the extent to which she stimulated and encouraged the child, and (4) the frequency and intensity of expression of positive feelings toward the child.

Direct Assessment of Maternal Personality Variables

Evidence to date indicates that there exists within the child an innate propensity towards attachment to a mother figure. The quality of this attachment is influenced by a number of different factors, among them the characteristic behavior patterns of the mother. Surprisingly, given the demonstrated importance of this variable, very little research in the field of attachment behavior has focused directly on personality variables of the mother.

A study by Moss, Ryder and Robson (1967) was made in an effort to determine whether there are maternal personality variables predictive of a mother's responsiveness to her child. They did personality assessments on a number of newlywed mothers and subsequently correlated these with measures of responsiveness to crying in their 3-month old children. Those mothers found to be comfortable with their feminine, nurturant role were found to be more responsive to their children. In addition, in a more psychodynamic sense, mothers who identified with their fathers tended to be more responsive to their children than mothers who either identified with their mothers or who showed little parental identification.

Caldwell and her colleagues (Caldwell, Hersker, Lipton, Richmond, Stern, Eddy, Drachnam, & Rochman, 1963; Caldwell & Hersker, 1964) dealt more specifically with the relationship between maternal personality variables and the mother's pattern of relating to her child. As in the Moss et al. (1967) study, Caldwell assessed the mothers' personalities before the birth of their children. The assessments were based on Murray's Catalog of Needs. The mothers were divided according to whether or not they shared the care of the child with others, such as in day care centers or with baby sitters or grandparents. Caldwell concluded that a mother's personality traits definitely influenced her pattern of raising the child, and therefore, they influenced the personal development of the child. Mothers who played an almost exclusive child-rearing role were found to be less dependent, hostile, and dominant than mothers who shared the care of their children. Based on ratings made at one year of age, children who were raised primarily by one parent were found to be more dependent on that parent, more

responsive to nurturant care, and more anxious to maintain proximity to the parent.

Summary and Statement of the Problem

It seems unquestioned that secure attachment to a mother figure is extremely critical in development. Bowlby maintains that the child has within him an inborn capacity to develop attachment, a secure and satisfying relationship which becomes the prototype for all his future personal relationships. This propensity for attachment serves not only as a protective device for the child to weather the insecurities and imponderables of early life, but also as a safe base from which the child can subsequently explore and relate to his environment.

Much research on attachment has been focused on its importance to the child in later development, with emphasis placed on such variables as dependency and school adjustment. There seems to be little dispute that for healthy, normal adjustment the establishment of a secure attachment in early infancy is a prerequisite. However, it is not clear what the determinants of a healthy attachment are. To date, the literature is primarily observational and descriptive, relying heavily on interviews with mothers and their retrospective reports regarding child-rearing practices and children's responses. These techniques result in good descriptions of what adequate attachment is, but they do not permit predictive statements, nor do they have practical value.

While there is universal acceptance of the importance of the mother in developing this mother-child bond, there have been surprisingly few studies which attempt to isolate maternal personality variables which may prove important in attachment formation. The studies

of Ainsworth (1967), David and Appel (1969) and Schaffer and Emerson (1964) indicate that the amount of time and attention the mother gives her child, as well as her willingness to interact with the child, greatly influence the subsequent quality of attachment. Other studies (Moss et al., 1967; Yarrow, 1963) deal with specific maternal variables that influence these behaviors. One of the theses of these studies is that the mother's degree of nurturance is predictive of her responsiveness to her child.

It is to these questions that this work is addressed. This thesis attempted to show that the manner in which the mother relates to her child is correlated with certain maternal personality characteristics. Specifically, one of the aims of this study was to further substantiate the hypotheses that mothers who rate high on a nurturance index will engage in more behavior known to be conducive to establishing attachment than mothers who rate lower on nurturance scales. Indices of maternal interaction used in this study were threefold: play interaction, social/verbal interaction and physical contact. Behaviors were recorded in a controlled laboratory setting. Observations were taken both in a novel situation with the mother and child at play and in a stress situation after the mother had been separated from the child for a short time. A further expectation, in light of the work by Schaffer and Emerson, was that the more nurturant mother would show significantly more interactions with her child in periods of stress.

The effect of two other personality variables--dominance and dependence/independence--were examined in the same manner. The literature to date does not offer concrete information on how these variables

may influence the mother's behavior towards her child. Both, however, have implications for the way a person characteristically interacts. Dominance implies a controlling, directive, less sensitive manner of interrelating. Dependence implies a protective, overly-attentive, overly-affectionate manner of relating. One of the aims of this work was to observe how mothers who rate high, medium and low on these dimensions react to their children in both a stress and non-stress situation.

Finally, observations were made on the child-mother interaction while the mother was occupied with a defined task. The study attempted to show whether these three personality traits relate to the manner in which the mother responds to attention-seeking behavior on the part of her child when the mother is otherwise occupied.

CHAPTER II

METHOD

Subjects

Subjects included 36 mothers and their infants. The names of possible subjects were acquired from the Grand Forks, North Dakota newspaper which reported all births in the community. Letters were sent to over 200 parents, who were subsequently phoned with the request that they participate in the study. Of approximately 100 of those parents who expressed a willingness to participate, 40 infants, equally divided between sexes, were chosen. The criteria for final selection, besides sex ratio, were that the child be between the ages of 11 and 14 months, and that he was able to walk at the time of the experiment. No attempt was made to control for birth order. No specific criteria were specified for the mother. Due to illness or inability to keep scheduled appointments, four of the subjects were eliminated from the study, so that the final subject total was 19 female and 17 male infants.

Three undergraduate students majoring in psychology at the University of North Dakota served as observers for the study. They were instructed to dictate a total account of the behaviors of the mother, concentrating on the behaviors to be investigated which were provided them on a summary sheet. The experimenter discussed each of the specific behaviors for all of the coding categories listed in Tables 2

and 3, and gave examples of each of them. Following this, a mock running of the episodes was done and then a trial run involving the complete series with mother and child. The observers dictated both of these situations into a tape recorder in exactly the same manner as they would in the experimental situation. The experimenter then discussed the results with the observers, and felt confident that they had mastered the assignment. The observers were not aware of the hypotheses of the experiment, and they had no previous knowledge regarding any of the subjects used in the experiment.

Experimental Setting

A 9' x 20' room served as the setting for the experiment (see Figure 1). Two doors open into the room. A chair was placed next to each door, one designated "mother chair" and the other "stranger chair." The room was chalked off into eight 4½' x 5' squares and labelled with alphabetical letters for the observers' benefit. Numerous toys (stuffed animals, musical and squeeze toys, educational toys) were scattered in blocks A, B, C and D. There was also a six-foot air-filled clown in the far corner of E square.

The observers sat behind a 4' x 7' two-way mirrow adjacent to E and F squares.

Instruments

Measurements of nurturance, dominance and dependence/independence were obtained from the Edwards Personal Preference Schedule, a self-report inventory designed by H. A. Murray. The inventory measures normal personal variables and it employs a forced choice item form to minimize the role of social desirability in item choice. The Edwards

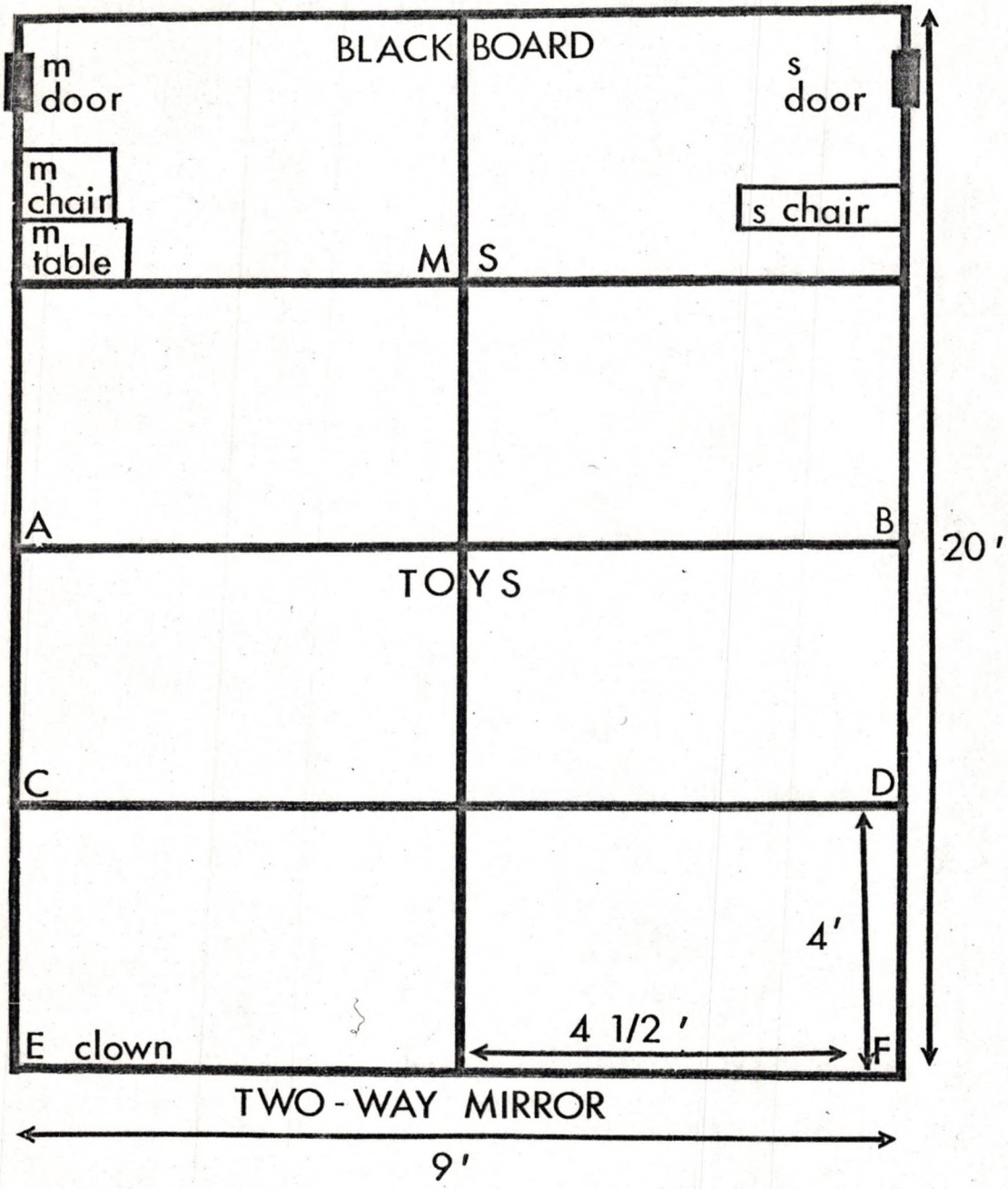

Fig. 1. Experimental Setting.

was administered to the mothers during the final episode of the experiment, serving as the means to keep the mother occupied.

Although the Edwards does not specifically measure the variables of dependence/independence, Bernardin and Jessor (1957) have devised a method of isolating these factors based on the Edwards deference and autonomy scales. Their criteria for dependence is a score at or above the seventieth percentile on the deference scale and at or below the fiftieth percentile on the autonomy scale, with a minimum difference of thirty points between the percentile scores. The criteria for independence is an autonomy score at or above the seventieth percentile and a deference score at or below the fiftieth percentile, with a minimum separation of thirty points between scores. Using these criteria, six of the thirty-six subjects were rated dependent and thirteen were rated independent. The remaining seventeen subjects constituted the medium group on this dimension.

Classifications for high, medium and low on both the nurturance and dominance scores were obtained by using means and standard deviations of the Edwards variables, based on normative data for general female adult samples. Those scoring at or above one standard deviation above the mean on each scale were classified high nurturance or high dominance. Those scoring below one standard deviation were judged low; those in a range of plus or minue one standard deviation were judged medium. Using these criteria, the thirty-six mothers were classified according to first their nurturance and then their dominance scores. Six mothers fell in the high dominance group, twenty-four in the medium, and six in the low. Five subjects fell in

the high nurturance group, twenty-three in the medium, and eight in the low.

Procedure

Each of the mother-child pairs was seen individually. Upon their arrival, the mother was presented with written instructions (Appendix A), which gave a general over-view of the upcoming episodes and the mother's involvement in them. These instructions were discussed with the mother and she was given an opportunity to ask questions regarding the procedure. Answers to any questions regarding the nature of the experiment, however, were deferred until after the episodes were completed.

The procedure used was a slight modification of the strange situation devised by Ainsworth and Wittig (1969). The procedure is submitted in Table 1. The procedure includes two brief separations of the child from the mother, and two subsequent reunions. A reunion with the stranger after separation from mother, which was part of Ainsworth and Wittig's procedure, did not seem necessary in the present study and was omitted. The initial episode was lengthened from thirty seconds to three minutes in order to get a more thorough picture of the mother's behaviors. The eighth episode was an addition, designed to provide an opportunity to record the mother's reactions to attention-seeking by the child while the mother was occupied with another task.

The behavior of the subjects was observed from an adjoining room through a two-way vision mirror. Two observers dictated continuous narrative accounts into reel to reel tape recorders--one concentrating on the mother's behavior, the other on the child's behavior. The experimenter then transcribed each of these tapes, and with the aid of a stop watch broke each of the episodes into 15-second intervals.

TABLE 1

OBSERVATION EPISODES

Episode	Duration	Participants	Description of Episode
1	3 minutes	Observer, baby, mother	M and B are accompanied into room by O, who immediately leaves. M has been instructed to use the time to get B acquainted with the room in whatever way she feels appropriate.
2	3 minutes	Mother, baby	At the sound of a rap on the door, M sits down in predesignated chair and remains there throughout the episode. B is free to explore.
3	3 minutes	Stranger, baby, mother	S enters, sits, and converses with M. The two remain seated throughout the episode.
4	3 minutes[a]	Stranger, baby	S tries to interest B in a toy if B is distressed. S responds to any initiations of interaction of B.
5	2 minutes	Mother, baby	S leaves as M enters. M pauses in doorway to give B an opportunity to mobilize a spontaneous reply to her. No specific instructions were given to M, except that at the end of the second minute she would be called out of the room, and that she should say "bye-bye" before leaving.
6	3 minutes[a]	Baby	B is left alone for the duration of the episode.

TABLE 1--Continued

Episode	Duration	Participants	Description of Episode
3	3 minutes	Mother, baby	M enters, pauses as she did in Episode 5. No specific instructions are given her except that at the end of three minutes O would enter the room with further instructions. O enters with a test booklet, and explains the directions to M. O also brings a novel toy (toddler bike) which he sets in square B. M and B are then left alone, with M instructed to work on the test. She is seated at her previously designated chair.

[a]Episode was curtailed if the baby became too distressed.

The mother and child narratives were then consolidated, with the result being one comprehensive narrative of the proceedings for each mother-child pair. A sample protocol is included in Appendix B.

Scoring

The experimenter scored each of the thirty-six protocols for a number of maternal variables. For the present study, only episodes one, five, seven and eight were coded, as they were the only episodes in which the mother interacted freely with the child. Episode one involved a novel situation in which the mother was given an open opportunity to interact with the child as she so desired. Episodes five and seven were stress situations for the child in that immediately preceding them the child was either left with a stranger or left completely alone. These episodes afforded opportunity to view the mother's behaviors as she responded to her child's stress. Episode eight involved a situation where the mother was occupied with a predetermined task. It afforded an opportunity to see how she reacted to attention-seeking behavior on the part of the child while she was occupied.

Three major categories of maternal behaviors were recorded for episodes one, five and seven: play interaction, social/verbal interaction and physical interaction. If any specific form of interaction occurred during a 15-second segment, a tally of one was recorded. Thus, the maximum number for each behavior for each three-minute episode was twelve. Coding categories, sub-categories and sample behaviors are detailed in Table 2.

Observations were made on episode eight using slightly different coding criteria. In this episode the mother was occupied with

TABLE 2

CODING CATEGORIES FOR EPISODES 1, 5 AND 7

Interaction Type	Behavior	Definition	Example
Play	Play Demonstration	Mother facilitates and controls play by picking up toy, demonstrating toy, etc. Child remains essentially a non-participant observer.	
	Participant Demonstration	Both the mother and child play with a toy, the mother demonstrating its use and helping the child to manipulate it. The child is actively involved in the play interaction.	
Social/Verbal	Non-verbal Support	Mother reacts to the child in any non-verbal manner which demonstrates affection or encouragement.	Smiling, nodding.
	Looking	Mother watches the child, who is independently at play.	
	Verbal Demonstration	Mother gives instructions while she demonstrates a toy.	"Watch me." "This goes here."
	Exploration Encouragement	Mother encourages the child to get involved while she remains essentially inactive.	"Go get the ball." "Where's the doll?" "You can do it."
	Encouragement for Proximity	Mother encourages the child to come to her.	"Come here." "Come sit on mommy's lap."
	Comfort Responses	Mother verbally soothes the child when the child is distressed.	"That's OK." "Mommy's here."

TABLE 2--Continued

Interaction Type	Behavior	Definition	Example
Social/Verbal	General Verbalizations	Catch-all category for all verbalizations directed to the child which do not fit in the aforementioned categories.	
Physical	Initiating Contact	On her own, the mother pets, picks up or handles the child in some manner.	
	Responsive Contact	The mother's physical interaction with the child is in response to some demand made by the child. For example, the child cries, falls, indicates he wants to be picked up.	

filling out a questionnaire while the child was free to play. Once again, the episode was divided into 15-second intervals. The total number of intervals in which the mother looked around the room to check on the child, independent of the baby's actions, was recorded. In addition, a tally of the child's attention-seeking behaviors was made. The mother's responses to these ateention-seeking behaviors were coded according to four categories: (1) ignoring, (2) verbal comfort, (3) punitive responses and (4) active facilitating responses. A detailed account of these four categories is found in Table 3.

An independent scorer randomly selected five protocols and scored them according to the above-mentioned coding criteria. The interjudge reliability coefficients between his scoring and the scorer of all thirty-six protocols is as follows: play demonstration, .93; participant demonstration, .99; non-verbal responses, .95; looking, .99; verbal demonstration, .97; exploration encouragement, .88; encouragement for proximity. 1.00; comfort responses, .96; general verbalizations, .98; initiating contact, .88; responsive contact, .99; checking, .99; ignoring, .95; verbal comfort, .98; punitive response, .97; active response, .96.

TABLE 3

CODING CATEGORIES FOR EPISODE 8

Specific Behavior	
Ignoring	The mother totally ignores the attention-seeking behavior of the child, and she continues to work on the questionnaire. She does not look up at the child, she makes no verbal response.
Verbal Comfort	The mother responds to the attention-seeking behavior with a comforting or supportive verbalization. She may or may not look at the child, but she does not leave her chair. "That's a good boy." "Keep trying, you'll get up on that bike." "Are you having fun playing with that?"
Punitive Response	The mother reprimands or rejects the child in some manner. It may be a verbal reprimand ("Don't do that." "Go away, mommy's busy." "Why are you acting like such a baby?"), or it may be a physical rejection (Pushing away the child's hand; spanking the child; removing the child from the scene.)
Active Facilitating Response	The mother physically responds to the child's behavior by leaving her chair and actively dealing with the attention-seeking behavior in a manner which is designed to get the child interested in play. For example, she mounts the child on the trike and pushes him for a while; she spends time showing him how to manipulate one of the toys.

CHAPTER III

RESULTS

The sign test for large samples was used to determine whether there were significant differences in maternal behaviors between non-stress and stress conditions. As previously noted, episode one was considered a non-stress situation for the child; episodes five and seven were stress situations in that immediately preceding these episodes the child had been left either with a stranger or completely alone. For the purposes of the sign test, episode one was compared with episode seven, the episode following the period when the child was left completely alone. Comparisons were made for each maternal variable, and the results are summarized in Table 4.

TABLE 4

SIGN TEST PROBABILITIES FOR STRESS VERSUS NON-STRESS EPISODES FOR EACH MATERNAL BEHAVIOR CATEGORY

Behavior	Probability
Play Interaction	.432
Participant Demonstration	.226
Non-verbal Support	.500
Looking	.355
Verbal Demonstration	.119
Exploration Encouragement	.129
Encouragement for Proximity	.111
Comfort Responses	.001
General Verbalizations	.226
Initiating Contact	.291
Responsive Contact	.001

Only two of the sign tests proved significant--comfort responses and responsive contact. For one of these behaviors, responsive contact, thirty-five mothers did not exhibit the behavior at all in the non-stress situation. However, in the stress episodes all mothers made at least one response and twenty made five or more, which indicates a clear non-stress/stress effect for this behavior. Furthermore, the category, by definition, is one in which more demonstration of this behavior is expected when the child is under stress, since responsive contact by definition presumes that the child will have asked for the contact. The same is true for comfort responses. More of these responses are to be expected in a stress situation.

Following the analyses for association between frequencies of behaviors and stress and non-stress episodes, the hypotheses concerning association between frequencies of maternal behavior and measured personality traits were tested using chi squares. For each behavior the median frequency of occurrences was tabulated across all mothers and are shown in Table 5.

As explained in the preceding chapter, mothers were divided into high, medium and low groups for each personality trait (nurturance, dominance, and dependence/independence). A three by two contingency table was prepared for each chi square, showing the association between the personality trait, divided into high, medium and low, and the frequency of maternal behaviors, divided into below the median, and at or above the median.

In instances where there was a non-stress/stress effect, two chi squares were calculated for each trait, one for non-stress and one for the combined stress episodes. The results are summarized in Table 6.

TABLE 5

MEDIAN NUMBER OF MATERNAL BEHAVIORS FOR INDIVIDUAL AND COMBINED EPISODES

Behavior	Episode 1	Episode 5	Episode 7	Total
Play Interaction	7.25	2.90	4.36	15.50
Participant Demonstration	1.27	0.40	2.10	5.00
Non-verbal Support	2.36	0.80	1.90	5.00
Looking	0.50	1.75	1.90	5.83
Verbal Demonstration	2.50	1.17	2.64	7.75
Exploration Encouragement	0.32	0.36	0.40	1.32
Encouragement for Proximity	0.06	0.10	0.19	0.32
Comfort Responses	0.06	0.32	0.70	1.17
General Verbalizations	3.07	2.20	2.21	6.12
Initiating Contact	0.14	0.12	0.17	0.50
Responsive Contact	0.01	0.32	2.07	3.50
Looking (Occupied)				4.50
Ignoring				2.50
Verbal Comfort				1.17
Punitive Response				0.50
Active Response				0.75

TABLE 6

CHI SQUARES AND PROBABILITIES FOR MATERNAL PERSONALITY VARIABLES VERSUS MATERNAL BEHAVIORS IN BOTH NON-STRESS AND STRESS SITUATIONS

Condition	Trait	Behavior	χ^2_a
Non-stress	Nurturance	Comfort Responses	5.305
	Dominance	Comfort Responses	0.984
	Dependence	Comfort Responses	1.639
	Nurturance	Comfort Responses	1.531
	Nurturance	Responsive Contact	4.445
Stress	Dominance	Comfort Responses	4.214
	Dominance	Responsive Contact	1.885
	Dependence	Comfort Responses	0.919
	Dependence	Responsive Contact	2.179

[a] d.f. = 2; for significance at .05 level χ^2 5.99

No analyses were done for responsive contact behaviors in the non-stress condition since thirty-five of the thirty-six mothers showed no behavior in this category. None of the results were significant.

Since the non-stress/stress differentiation was not significant for most of the maternal behaviors, episodes one, five and seven were collapsed. Once again, three by two contingency tables were prepared for each personality variable for each of the maternal behaviors. Chi squares were calculated to show the association between the high, medium and low classifications of each personality trait and the frequencies of each behavior, divided into below the median and at or above the median. Results for nurturance are summarized in Table 7.

TABLE 7

CHI SQUARES AND PROBABILITIES FOR NURTURANCE VERSUS MATERNAL BEHAVIORS

Behavior	χ^2_a
Play Demonstration	0.2438
Participant Demonstration	0.6542
Non-verbal Support	0.9832
Looking	0.6343
Verbal Demonstration	0.6343
Exploration Encouragement	0.1487
Encouragement for Proximity	5.0590
Comfort Responses	1.6367
General Verbalizations	2.4155
Initiating Contact	0.7434

[a] d.f. = 2; for significance at .05 level χ^2 5.99

None of the chi squares obtained for nurturance were significant. The degree of nurturance obtained from test results was not associated with a tendency to exhibit any of the behaviors observed.

Results for dominance are summarized in Table 8.

TABLE 8

CHI SQUARES AND PROBABILITIES FOR DOMINANCE VERSUS MATERNAL BEHAVIORS

Behavior	χ^2_a
Play Demonstration	3.3333
Participant Demonstration	0.3937
Non-verbal Support	2.7306
Looking	0.5572
Verbal Demonstration	0.5572
Exploration Encouragement	3.0937
Encouragement for Proximity	0.4090
Comfort Responses	2.4000
General Verbalizations	4.4437
Initiating Contact	0.8333
Responsive Contact	3.5000

[a]d.f. = 2; for significance at .05 level χ^2 5.99

None of the results were significant. The degree of dominance obtained from test results was not associated with a tendency to exhibit any of the behaviors observed.

Results for dependence are summarized in Table 9.

None of the eleven chi squares were significant. Measures of dependence/independence obtained from the test results were not associated with a tendency to exhibit any of the behaviors observed.

In a like manner, three by two chi squares were calculated on all three personality variables for the five maternal behaviors coded in episode eight. The results are summarized in Table 10.

None of these analyses yielded significant chi squares either. There was no association between measured personality traits and frequencies of behaviors of the mothers while occupied.

TABLE 9

CHI SQUARES AND PROBABILITIES FOR DEPENDENCE VERSUS MATERNAL BEHAVIORS

Behavior	χ^2_a
Play Demonstration	1.2730
Participant Demonstration	1.1168
Non-verbal Support	2.0581
Looking	0.6934
Verbal Demonstration	3.7889
Exploration Encouragement	5.7502
Encouragement for Proximity	2.5629
Comfort Responses	0.2808
General Verbalizations	0.9855
Initiating Contact	4.2141
Responsive Contact	1.4178

[a]d.f. = 2; for significance at .05 level χ^2 5.99

TABLE 10

CHI SQUARES AND PROBABILITIES FOR PERSONALITY TRAITS VERSUS MATERNAL RESPONSES TO CHILDREN'S ATTENTION-SEEKING BEHAVIORS

Trait		χ^2_a
Nurturance	Looking	3.8434
	Ignoring	0.2434
	Verbal Comfort	0.0096
	Punitive Response	0.7434
	Active Response	2.9792
Dominance	Looking	1.3333
	Ignoring	0.0000
	Verbal Comfort	2.3376
	Punitive Response	0.0000
	Active Response	0.2250
Dependence	Looking	1.2730
	Ignoring	1.2217
	Verbal Comfort	0.4051
	Punitive Response	1.2217
	Active Response	0.1639

[a]d.f. = 2; for significance at .05 level χ^2 5.99

To further substantiate these results and to get a more powerful reading of the interrelations between maternal personality traits and maternal behaviors, point biserial correlations were calculated. These correlations provided a measure of the relation between the individual test scores for the personality trait and the median split of the individual behaviors for the combined non-stress/stress episodes. Correlations were calculated only for the nurturance and dominance personality traits, for which the Edwards test provided individual scores. As was explained in Chapter II, no individual test scores were procured for the dependence/independence classification. The results of these calculations are summarized in Table 11.

TABLE 11

POINT BISERIAL CORRELATIONS AND THEIR SIGNIFICANCE BETWEEN PERSONALITY TEST SCORES FOR NURTURANCE AND DOMINANCE VERSUS MATERNAL RESPONSES

Behavior	Correlations[a] Nurturance	Dominance
Play Demonstration	0.134	0.070
Participant Demonstration	0.034	0.070
Non-verbal Support	0.020	0.001
Looking	-0.199	0.122
Verbal Demonstration	-0.133	0.176
Exploration Encouragement	-0.163	0.159
Encouragement for Proximity	-0.398[b]	0.196
Comfort Responses	0.181	-0.193
General Verbalization	0.089	0.304
Initiating Contact	-0.060	0.126
Responsive Contact	-0.060	0.150
Ignoring	-0.129	0.147
Verbal Encouragement	-0.020	0.042
Punitive Responses	-0.218	-0.033

[a] d.f. = 34

[b] $p < .001$

The non-significant correlations substantiated the non-significant chi squares in all but one instance. There proved to be a significant inverse relationship between nurturance and proximity vocalizations. The chi square regarding this relationship approached significance (see Table 7). The median number of responses in this category was zero, with twenty of the mothers making no responses and sixteen making one or more. The tendency was for low nurturant mothers to make more proximity-inviting statements than medium or high nurturant mothers.

In summary, then, there proved to be a non-stress/stress differentiation in only the comfort response and responsive contact categories. The only maternal personality trait that was significantly related to a maternal behavior was nurturance which was correlated with encouragement for proximity. For the most part, then, the hypotheses that maternal personality traits as measured by the Edwards Personal Preference Schedule would be related to maternal behaviors exhibited in a controlled laboratory situation were not confirmed.

CHAPTER IV

DISCUSSION

The literature concerning the effect of maternal behavior on the development of attachment indicates that the critical variables are the amount of time and attention the mother gives the child (Ainsworth, 1967; Moss et al., 1967; Schaffer & Emerson, 1964). Moreover, these studies suggest that specific personality characteristics of the mother, particularly degree of nurturance, are important determiners of the mother's interaction with her child. Presumably, then, these personality variables affect the quality of mother-child attachment. The present study, however, does not support any of these assertions.

Nurturance was the only personality variable which was significantly associated with any of the maternal behaviors, and it was related only to verbal proximity behaviors. Low nurturant mothers made more proximity-inviting statements than medium or high nurturant mothers. One interpretation of these results is that low nurturant mothers maintain greater distance from their children and are less indulggent to their children's demands. If the child wants attention, the high nurturant mother would be more likely to move to the child to meet his demands. The low nurturant mother, on the other hand, would be more likely to request movement of the child by encouraging proximity.

There were no other relationships found between degree of nurturance and the remaining maternal variables of play interaction,

social/verbal interaction, physical contact or maternal behaviors while occupied. These results do not indicate that highly nurturant mothers engage in more behaviors conducive to the establishment of attachment than low nurturant mothers.

Furthermore, there were no significant results regarding the dominance and dependence measures, and there were no apparent trends. This was also true for episode eight, when the mother was occupied. The mother's manner of dealing with attention-seeking demands of her child, then, did not prove to be differentiated on the basis of any of the personality variables, nor was the number of times she independently looked around to check on the child.

Only two types of maternal behavior, verbal comfort and responsive contact, were affected differentially by non-stress and stress conditions and these results were to be expected. Thirty-five of the mothers made no responsive contact responses in the non-stress situation. During the stress situation, however, all mothers made at least one response, and twenty of these responded five or more times. Clearly, there was a non-stress/stress difference with respect to this behavior, as there was for its logical counterpart, verbal comfort responses. However, there was no evidence found that these responses were a function of personality traits.

In retrospect, one must question the methodologically soundness of this study. Ainsworth originally set up these strange situation episodes as a means to assess attachment behavior and its correlates among children only. It was not designed to assess maternal behaviors. One conclusion that may be drawn from this study is that the laboratory setting is not an effective way to assess maternal

behaviors towards their children. All of the studies summarized previously regarding maternal behaviors make use of naturalistic settings over a long period of time. Data collected by Ainsworth (1963, 1967) on Ugandan children and mothers was accumulated through observations made over a number of years. Schaffer and Emerson (1964) visited Scottish families every four weeks until the child reached one year of age. Moss et al. (1967) studied mothers in a naturalistic setting over a one-year period, as did Rheingold (1969).

The inference to be drawn, it seems, is that although the time-limited laboratory setting is an effective means of assessing children's attachment and exploration behavior, it is not a suitable way to measure mothers' behaviors, particularly when such short episodes are used. In the present study, influences extrinsic to the three personality variables entered which could have interfered with the mothers' behaviors. The situation was a strange one for the mother, and in some instances an anxiety-laden one. Although she was never so instructed, it is quite conceivable that she knew she was being watched. It is just as conceivable that she felt nervous or threatened in some manner, and this affected her interactions with her child. The relatively short time spans of the episodes further contributed to the problem, for they did not permit the mother to adjust to the situation.

Another possible factor was the selection of mothers. Of the over 200 mothers initially contacted, only those who showed a willingness to participate were accepted. This willingness involved taking the time and trouble to come to the laboratory setting on their own at a specified time. No extrinsic rewards were offered. It became apparent that one of the motivations for agreeing to participate

was a personal one--many of the mothers who agreed to do so seemed anxious to exhibit their children and gain approval for them and, by extension, for themselves.

In short, then, there seemed to be a number of extraneous influences which could have affected the outcome of this study. The coding categories chosen were of necessity specific, but not to the degree that they should have impaired the study. Yet the scores and ranges of the individual maternal behaviors did not discriminate adequately between mothers. For most of the maternal behaviors measured, the range did not exceed 0-8. Because the format of the study did not allow for discriminating scores, it would seem erroneous to conclude that the influences of nurturance, dominance and dependence-independence do not affect maternal behavior in relation to their children.

Two solutions come to mind. If the laboratory setting is to be employed, then the individual episodes should be sufficiently lengthened so that the mother is allowed the opportunity to adjust to the novel situation. The sense of the experimenter was that at the beginning of each episode, the mothers entered and behaved in a fairly consistent manner, involving themselves in a flurry of activity in order to involve their children in the play situation. It was only during the latter part of the episode, after the novelty of the situation subsided and the nervousness of the mothers eased, that discriminating behaviors became apparent. If the episodes were lengthened by five minutes there seems to be a strong likelihood that these discriminating behaviors would show in the data. As the study was run, they did not.

The other solution is, of course, to limit observations of the mother-child interaction to naturalistic settings, and to extend these observations over a period of time. It seems safe to speculate that mother's behaviors towards their children are different outside of the home environment, and it is the home-environment behaviors that are of interest. By visiting the home in spaced intervals, a more accurate account of the mothers' characteristic manner of responding to the child could be obtained.

APPENDIX A

INSTRUCTIONS TO MOTHERS

INSTRUCTIONS TO MOTHERS

This will consist of a series of episodes that are timed, so it is important that we follow these directions without interruption. Initially you will be taken into the main room with your baby and will be left there for awhile so that you both can become accustomed to the room. In the first episode a young woman will enter, talk with you for awhile, and give you a cue to leave the room. After a few minutes, you will re-enter, pause at the doorway so your baby sees you, and then get him/her interested in the toys again. Shortly afterwards you'll be called out of the room again. At this point, if the baby is making too much of a fuss, you can return. Otherwise, you'll remain outside and the baby will be alone for a few minutes. Then you will re-enter, and that essentially will be the end of the session. At that time a questionnaire will be brought into the room for you to fill out. The questionnaire should not last much more than 30 minutes.

Many thanks for your cooperation.

APPENDIX B

SAMPLE PROTOCOL

SAMPLE PROTOCOL

I. 1a. M has b in arms, puts b down in b sq. facing away from m, picks up doll shows it to b, looks at b, m is smiling at b.

b. B grabs doll and hugs it, turns away from m, b looking at toys on floor, reaches for turtle, m is looking at toys, sitting in sq. b, m picks up tbear, shows it to b.

c. B looks at tbear, takes it from m, m says something to b, b looks to bozo at other side of room, m looks at bozo, says "look over there," b gurgles, points to bozo and looks at m.

d. B looks at wall, floor, b gurgles, m picks up toy, squeezes it in front of b, b looks at the toy, m puts it back down.

2a. B looks at bear, at doll, m is talking to b, looks around, picks up pullapart toy.

b. B gurgles, looks at toy on the floor, m shows pullapart toy to b, she turns the sides of it, b goes ohhh and points to pull-apart toy.

c. M sets town down in front of b, b looks at bozo and then at the toy that m puts in front of her, m picks up turtle, moves closer to b, m puts turtle down, m smiles at b, b looks at the turtle.

d. B gurgles, looks at the turtle, m takes the bear and stands it up near b, puts it down besides b, m looking at b, b looks at bear, at s door, at bozo, b gurgles, moves to sq. a.

3a. M picks up cow, squeezes it and pulls it up to b, m smiling at b, b looks at cow, b smiles, m moves the cow back and forth, squeezes it and pulls it up to b, m laughing, m moves the cow back again, b smiles.

b. M pulls the cow up to b, squeezes it, m laughs, b laughs, b looks at m when she squeezes it.

c. M squeezes the cow again, m laughing, m looking at b, b looks at cow, laughs, b looks at m, b smiles, gurgles, pats the bear on the head, m picks up clock.

d. B looks at bozo, gurgles, m brings the clock and puts it in front of b, m pulls the string on the clock, b watches the clock, m smiling at b, b stands in m sq and then sits down.

II. 1a. M is sitting down, smiling at b, pointing to the cow, talking to b, b watches m.

b. B stretches out hand and gurgles, m gets up, gets her purse on s chair, goes back to chair, b picks up car, shows it to m.

c. B starts to rock back and forth, m smiles at b, says something, b looks at clock and gurgles, looks at m, gurgles at m.

d. M smiling at b, laughing, looks at b, b looks at m, b points to the clock and gurgles.

2a. B picks up a little toy, b says "baby" and bends over the hugs the bear, m smiles at b.

b. M points to the board, looking at b, b points to m and says 'baby,' b points to board, b hugs bear.

c. B rocks back and forth with bear and gurgles, m smiling at b, b picks up doboy and moves it, b picks up little man, b moves the cow, m says "Michelle, can you squeeze that cow?"

d. B looks at m as m is speaking, b picks up little toy and holds it to m, m says "baby, what's that?"

3a. B looks back at the cow, gurgles, picks up the cow, m looks at b.

b. B pulls the cord and makes the cow go moo, b looks at m, m is looking at the wall, m looks at b and smiles, b looks at the wall.

c. M says, "Michelle, where's raggedy andy?" B looks at m, gurgles, points to pullapart toy, m says "no" and laughs, b picks up piece of puzzle and shows it to m.

d. M is looking at the toys, smiling at b, says something, b reaches over picks up piece of the puzzle, looking at the floor, b picks up the turtle, looks at m, looks at turtle, looks at m.

III. 1a. S enters, b looks at s, looking at s, points to something, gurgles, looks at m, gurgles, looks at s.

b. B looks at wall, looks at s.

c. B looks at s, b plays with cow, looks at s, puts cow down, grabs bear and hugs it, pats bear on the head.

d. B looks at s, looks back at bear, puts bear down and grabs cord of cow.

2a. B looks at the cow, reaches for the tail, looks at s, back at the tail, looks at m.

b. B looks at s, b reaches for turtle, looking at turtle, picks up turtle and shakes it, holds it out to m and looks at s.

c. B holds turtle out to s, looking at s, looks at m shakes turtle, looks at m, b smiles as m looks at b.

d. B turns around and puts turtle on the floor, looks at clock, gurgles, looks at m, looks at s.

3a. B looks at clock, smiling, pointing at clock, looks at s.

b. B leans over and hugs bear, looks at s, brings bear closer to her, points to bear's eyes.

c. B brings turtle to s, shakes it, moves to s, turns around, puts turtle on the floor.

d. B grabs for clock, m gets up and leaves.

IV. 1a. B looks at s, gurgles at s, lifts her hand up, looks at clock.

b. B leans over and hugs bear, smiles, points to clock, looks at s.

c. B gurgles, looks at s, points to s door.

d. B looks out window, points to bozo, looks at wall away from s, reaches for turtle, turns around.

2a. B shows turtle to s, gurgles, hands it to s, s shakes it, s puts it down, b reaches for cow.

b. S takes cow from b, b looks at cow, s holds cow to b.

c. B reaches for puzzle piece instead, looks at s, holds out puzzle piece for s, gurgles, s takes it, b picks up another piece.

d. B looks at the wall, gets up, brings piece to s, b picks up another piece.

3a. B takes the piece back from s, looks at the clock, gives the piece back to s.

b. S gives the piece to b, b gives it back to s, b smiles, b reaches for the cup, b gives it to s, b smiling.

c. S gives cup back to b, b gives it back to s, s returns it, b takes it, b points to the cup, drops it, gurgles, looks around the room.

d. B looks at the walls, gets up, grabs a piece of a block, gives it to s, b looks at the pullapart toy, reaches for it, s stands up, b watches s as s leaves.

V. 1a. M walks in the door, says "Hi," b looks at me, holds piece of puzzle up to m, m walks toward b, m is in sq. b with b.

b. M turns puzzle around, shows it to b, b puts her hand on the puzzle, m offers it to b, b takes it from m.

c. B points to tractor, m picks it up and puts it in front of b, m sits down again, bends over, picks up the top, hands it to b, m works it for b.

d. M is smiling at b, b looks at the top, tries to make it work, b picks up the top, m says "What's that?" B puts the top on the bear's head and drops it, m says "You're having fun, aren't you?"

2a. B crawls across the bear, tries to pick up a little toy, knocks over the clock, drops the little toy on top of the clock, looking away from m, picks up another little man from the back of the truck, m watches b, m talks to b.

b. B is looking at the truck, takes a little car and stretches her hand out to give it to m, m takes the car from b, puts it down, puts the car back by the truck and says "Can mommy have that?"

c. B grabs another car and drops it in m's hand, m takes it from b, b takes it back from m, drops it, goes over to the tractor, m watches b at play.

d. B picks the tractor up and drops it, m moves the tractor away, b picks up a little car and holds it out to m, drops it in m's hand, m says "bye-bye," leaves.

VI. 1a. B looks at s door, looks around the room, looks at window, wall, at toys in her hands, reaches for the bear.

b. B drops a toy out of her hand, picks up another one, puts it in the back of the truck, picks up another toy.

c. B puts it in the back of the truck, sets the truck up again, picks up a little toy, holds it up in the air, puts the toy down.

d. B moves the little toys in front of her, picks up one, puts it on the clock, looks at bozo, at the clock, plays with the bee in the clock, looks at the truck.

2a. B reaches for the back of the truck, picks the people off the truck, sets them in front of her, picks up another toy, puts it in the truck, picks up a toy, puts it in the truck.

b. B picks up another toy, puts it in the truck, and another, picks up a toy and puts it on the truck.

c. B rubs her eyes and nose, looks at the toys, crawls to sq d, sits down, picks up a toy and puts it in the truck.

d. B moves the pieces around in the back of the truck, picking them up and putting them down, picks up a piece and looks at it.

3a. B looks around the room, picks a toy off of the floor, looks at the bear, picks it up.

b. B puts bear in her lap, puts it down, plays with toys in back of truck, puts bear back on her lap.

c. B plays with toys in back of the truck while holding bear with her left hand, takes a toy out of the truck, drops it back, lifts the truck up.

d. B takes the people out, moves the bear back and forth on her lap, lifts up the truck, shakes the truck, drops it in sq. c.

VII. 1a. M enters, b looks at m, m smiles at b, m walks to sq d and squats in front of b, b holds toy up to m, m hands b the clock.

b. M shows b a car, m looks and talks to b, b looking at the car, takes it from m, b looks at the wall, b looks at bozo.

c. M walks to sq. e and picks up bozo, m takes bozo to sq. d, says "oh," b looks at mirror and says "Oh."

d. M takes bear from b and picks up b and they both look at the mirror, b gurgles, b looks away from the mirror and drops toy, m puts b down in sq. d.

2a. B is sitting with face away from m, rocking back and forth, m is sitting in sq. e, m hands b the bear, b has arm over bear, b reaches for the pullapart toy.

b. M pulls b's pants up and checks them, m kneeling behind b, moves to sq. b, picks up doll, holds it in front of m, b looks at the doll.

c. B says "baby" and drops toy, b pulls doll closer to her, has bear in right arm and doll in left, rocks back and forth, m says "nice baby" and watches b.

d. M picks up top, works it for b, b holds cup to m, then holds bear out to m, then reaches for the top and tries to make it go, b looks at m, at top, m takes it and works it for b.

VIII. (Unless otherwise indicated, mother is working at test in this episode. Only deviations from that behavior are recorded).

1a. B is in sq. d, looking at m, looks at top.

b. B starts to play with top, tries to make it go, looks at toys, drops top, picks up cup, drops it.

c. B returns to top again, looks at it, takes it, looks at wall, at bozo, drops top, picks up tractor, m looks at b.

d. B looks at m, at wall, at m.

2a. B looks at top, tries to make it go around, holds bear in left hand, m looks at b and smiles.

b. B throws top away, picks up car, drops it, looks at wall, at floor.

c. B grabs truck, moves it with the cord, has it wrapped around her neck, looks at m.

d. B moves truck aside, tips it over, looks at wall.

3a. B looks at bear, at wall, at window, reaches over to pick up toys.

b. B moves to sq c, reaches for cup, holds bear in left arm, looks at dishes.

c. B puts bear in her lap, puts hand on bozo, gurgles, m looks at b and smiles.

d. B throws truck down, plays with a dish.

4a. B crawls to sq. a with bear, to m sq., close to m.

b. B holds on to m's knees, reaches for table, pulls herself up on table, watches m, m says "no, no" and moves ashtray away as b grabs for it.

c. B tries to bring bear up to table, falls, plays with bear, looks at m, looks under the table, gets on knees, pulls herself up to table.

d. B gurgles, reaches for test, m moves test and says "Michelle, go play. Where's raggedy anne?" B looks for doll. M says "She's waiting over there for you."

5a. B falls down with her bear, crawls to sq. a.

b. B kicks the cow with her foot, looks at the cow, crawls to tv, plays with it.

c. B moves to sq. c, picks up tv, carries it to a sq., m looks at b.

d. B looks at and plays with tv.

6a. B picks up dish, drops it on tv, looks at wall, m looks at b.

b. B moves bear on her lap, lets go of it, pulls herself on to the radiator.

c. B grabs on to another pipe, falls over, touches radiator, hits it with her hand.

d. B crawls to sq. e, rolls on bozo, looks back at wall.

7a. B pounds on the radiator, tries to get up on it, looks out of the window, m says "What's the matter?" M smiles at b, b b hits the radiator while looking at m.

b. B looks back at bozo, tries to reach it while standing by the radiator, moves to sq. c.

c. B still banging on the radiator, looks at the mirror, sits on the floor, crawls to corner of e sq.

d. B moves to f sq., reaches for a toy in e sq., goes to c sq., m looks at b.

8a. B looking at toys in front of her.

b. B still looking at toys in front of her.

c. B now playing with toys in front of her.

d. B reaching for tractor, takes the wheel from it and drops it.

9a. B moves from f to d sq., picks up the toy, looks at the wall, drops the toy, goes to the wall and hits it, goes back to f sq.

b. B hits the wall, still hitting the wall, puts a toy in her mouth.

c. M looks at b and watches b, says "What's in your mouth." Goes over and takes it out of b's mouth, m winds up tv for b.

d. B looks at m as she winds up the tv, b still looking at m as m sits and does her test, b bends over and picks up a little toy.

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